

## Court of Appeals, Federal Circuit

In re Grabiak

No. 84-1718

Decided Aug. 9, 1985

## PATENTS

## 1. Patentability — Invention — Specific cases — Chemical (§§1.5093)

Absent reference which shows, or suggests to one of ordinary skill in art, substitution of sulfur atom instead of particular oxygen in herbicidal safer compound, support is lacking that such modification would be *prima facie* obvious.

## 2. Patentability — Invention — Specific cases — Chemical (§§1.5093)

Obviousness of modification in herbicidal safer compound was not established absent evidence that modified segment was not significant to compound's claimed safeness properties, or that safeness properties of claimed compound were predictable from prior art.

## Particular patents — Herbicides

Grabiak, et al., 2-Chloro-4-Trifluoromethyl Thiazolocarboethic Acids Useful As Herbicidal Safeners, rejection of claims 1-34 reversed.

## Appeal from Patent and Trademark Office Board of Appeals.

Application for patent of Raymond C. Grabiak, et al., Serial No. 168,959, filed July 17, 1980. From decision sustaining rejection of claims 1-34, appellants appeal. Affirmed.

J. Timothy Keane, St. Louis, Mo., for appellants.

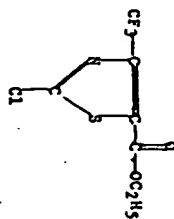
Fred W. Sherling (Joseph F. Nakamura, Solicitor, and John W. Dewhirst and Harris A. Pitlick, Associate Solicitors, on the brief) for Patent Office.

Before Friedman, Nies, and Newman, Circuit Judges.

Newman, Circuit Judge.

Raymond C. Grabiak et al. appeal from the decision of the Patent and Trademark

In the Howe disclosure R, R', n, and X, are broadly defined, the breadth of which is not pertinent to this issue. Very pertinent is the disclosure in Howe of the following specific compound:



This compound differs from those claimed by Grabiak only by the presence in Grabiak of a sulfur atom instead of a particular oxygen atom in the ester moiety, a difference which the examiner asserted would have been, without more, obvious.

The examiner cited the Bollinger reference as showing the interchangeability of oxygen and sulfur in compounds having safeness properties. Bollinger shows, as safeners for thioacarbamate and acetanilide herbicides, a class of 2-imino derivatives of 1,3-oxathioles and 1,3-dithioles. The examiner pointed to the 1,3-oxathiole/dithiole ring fragment:



wherein Z is defined as either oxygen or sulfur, as support for the conclusion that it would have been obvious to exchange a sulfur atom for an oxygen atom in the Howe compounds. The Board agreed.

On reconsideration, the Board in a split decision affirmed the rejection, citing *In re Fancher*, 410 F.2d 813, 161 USPQ 613 (CCPA 1969) and *In re Albrecht*, 579 F.2d 92, 198 USPQ 208 (CCPA 1978) for the proposition that oxygen and sulfur are well known to be interchangeable. To "reiterate that the close analogy between sulfur and oxygen isologs is well known," the Board referred to Conant & Blatt's discussion of the general similarities between simple sulfur and oxygen compounds. One member of the Board dissented, stating his belief that the compounds disclosed in Bollinger are "too remote to those claimed" to suggest substitution of sulfur for oxygen at a particular place in the Howe compounds.

## The Argument

Grabiak presented no evidence that his safer compounds have unobvious properties as compared with Howe's safer compounds, and stated plainly that they do not. Grabiak's argument is, in sum, that (1) in the field of biological activity, it is not predictable whether chemical compounds that have an apparent structural similarity will also have similar biological properties; (2) biological properties cannot be predicted; (3) therefore determined by experimentation; (4) more is required, such as suggestion in the prior art (a) that the structural modification should be made and (b) that the modified compound will exhibit the biological behavior of the prior art compound.

Grabiak argues that Howe does not teach that one of the oxygens in the Howe carboxylate group could be replaced with sulfur to produce safeners for acetanilide herbicides, and that Bollinger and Conant & Blatt do not cure this deficiency because Bollinger is dealing with a quite different part of a quite different molecule, and the Conant & Blatt text refers only to simple structures and chemical, not biological, properties; and in any event that safeness activity is, like all biological behavior, unpredictable. Grabiak asserts that the teachings of Howe with Bollinger and Conant & Blatt are insufficient to establish *prima facie* obviousness, in that there is no motive in the cited art to make the modification required to arrive at appellants' compounds.

## Analysis

1.

When chemical compounds have "very close" structural similarities and similar utilities, without more a *prima facie* case may be made. See for example *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977) (adjacent homologues and structural isomers); *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978) (stereoisomers); *In re Hoch*, 428 F.2d 1341, 166 USPQ 406 (CCPA 1970) (acid and ethyl ester). When such "close" structural similarity to prior art compounds is shown, in accordance with these precedents the burden of coming forward shifts to the applicant, and evidence affirmatively supporting unobviousness is required.

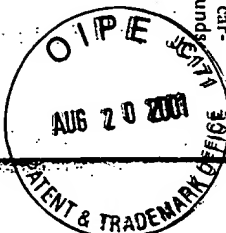
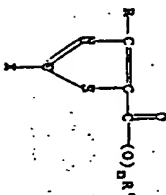
Analysis of those circumstances in which a *prima facie* case has or has not been made in view of the degree of structural similarity or dissimilarity, or the presence or absence of

wherein R is C<sub>1</sub>-alkyl, phenyl or benzyl. Other claims are directed to various specifics, to herbicidal mixtures containing these compounds, and to various methods of use of these compounds. Grabiak has not argued the claims separately, and we do not so consider them.

## The Rejection

The claims stand rejected as obvious from Howe et al. U.S. Patent No. 4,199,506. Also relied on are Bollinger U.S. Patent No. 4,317,310 and R. Conant & A. Blatt, *The Chemistry of Organic Compounds* 342-43 (3d ed. 1947), an organic chemistry textbook.

Howe describes a family of chemical compounds having utility as safeners for acetanilide herbicides, consisting of thiazole carboxylic and thiazole carboxamide compounds of the general formula:



similar utility between the prior art compound and that of the applicant, has inspired generations of applicants, courts, and scholars. Upon review of this history, we have concluded that generalization should be avoided insofar as specific chemical structures are alleged to be *prima facie* obvious one from the other. Although we do not accept Grabiak's argument that when biological activity is involved there can be no presumption (i.e., no *prima facie* case) of obviousness, in the case before us there must be adequate support in the prior art for the ester/thioester change in structure, in order to complete the PTO's *prima facie* case and shift the burden of going forward to the applicant.

[1] The Bollinger teaching of various heterocyclic rings containing either two sulfur atoms or one oxygen and one sulfur atom, rings which are unlike any part of the Howe molecule, does not suggest the interchangeability of sulfur for oxygen in the ester moiety of the Howe molecule. (Grabiak also analyzes the Bollinger disclosure as showing "dramatic decreases in safener activity when replacing oxygen with sulfur.") Conant & Blatt's brief discussion that "simple sulfur compounds" have properties similar to simple oxygen compounds does not purport to apply to complex organic molecules. Nor do the *Fancher* and *Albrecht* cases remedy these deficiencies, for in each of those cases the sulfur/oxygen interchange was in a heterocyclic ring common to both the prior art compounds and the applicant's compounds.

We repeat the statement of *In re Bergel*, 292 F.2d 955, 956-57, 130 USPQ 206, 208 (CCPA 1961), that:

The mere fact that it is possible to find two isolated disclosures which might be combined in such a way to produce a new compound does not necessarily render such production obvious unless the art also contains something to suggest the desirability of the proposed combination. [Emphasis in original]

The PTO cited no pertinent reference showing or suggesting to one of ordinary skill in the art the change of a thioester for an ester group. In the absence of such reference, there is inadequate support for the PTO's position that this modification would *prima facie* have been obvious.

## II.

The Solicitor contends that the sulfur in Grabiak that replaced the oxygen in Howe occurs in a portion of the molecule that is not significant to safener activity, as further argument that Grabiak's compounds would have

been obvious from Howe's compounds. To support this argument the Solicitor refers to the statement in Howe that the carboxylic moiety may include the acid and salts thereof, acid chlorides, amides, and esters. From this the Solicitor argues that the nature of this moiety "would not be expected to impart or contribute to the safener utility", and therefore that the replacement of Howe's ester with Grabiak's thioester would have been obvious.

[2] This argument is lacking in a critical element: adequate support in the prior art. Howe does not state that the carboxylic segment of his molecule is not significant to its biological properties, and no other support is invoked. We appreciate that the PTO lacks the possibility of experimental verification of this theory, but absent an initial *prima facie* case, we do not think the burden of disproving this theory is shifted to Grabiak. Nor do we judicially accept a theory that appears to require the general assumption that sulfur is not significant to biological behavior.

Grabiak argues further that the PTO's position that the identity of the carboxylic component is not material cannot apply here because safener activity can not be predicted from chemical structure. Grabiak asserts that the efficacy of any compound for safening depends on variables including the type of herbicide compound, the type of weed to be controlled, the type of crop to be protected and the safener compound itself. Grabiak cites data from Howe which he states show that a "compound, which safens one herbicide used to control barnyard grass in the presence of corn crop, is totally ineffective to safen that same herbicide to control barnyard grass in the presence of rice." Grabiak also cites data from Bollinger to support Grabiak's position that "safening activity even for closely similar homologues does not vary predictably."

In response, the Solicitor argues that it is not "necessarily true" that safening activity is not predictable from the structure of the compound. Evidence for this statement is seen by the Solicitor in Grabiak's compounds themselves, which are admitted to have the same safening activity as those of Howe. However, Grabiak's disclosure may not be used to fill the gaps in the prior art. If evidence of similar biological properties between -C(O)OR and -C(O)SR groups is to be relied upon, it must come from the prior art. The PTO produced no such evidence. Instead, the Board held that "it is not inconceivable to substitute [sulfur for oxygen] to obtain compounds having the same expected properties." We agree that it is not inconceivable. The standard, however, is whether it would have been obvious in terms of section 103.

In the absence of adequate support, we conclude that this argument does not perfect the PTO's *prima facie* case.

## III.

We have considered the decisions on which the PTO relies. In *In re Payne*, 606 F.2d 303, 203 USPQ 245 (CCPA 1979), there was prior art well supporting the PTO's *prima facie* case. In *In re Sust*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971), the difference from the prior art compound was a hydroxyl group, a difference that the applicant conceded was "of little importance." In *In re Deibel*, 461 F.2d 823, 174 USPQ 158 (CCPA 1972), the court stated that "the claimed compound is a homologue," and a *prima facie* case was held to have been made. None of these cases requires the result that a thioester derivative be deemed *prima facie* obvious from the corresponding ester in the absence of prior art on this point.

## Conclusion

On the record before us, we conclude that the PTO did not establish a *prima facie* case of obviousness, and thus did not shift to Grabiak the burden of coming forward with evidence of unexpected results.

REVERSED

## Court of Appeals, Federal Circuit

Rhone-Poulenc Specialties Chimiques,  
et al. v. SCM Corporation

No. 84-1557

Decided Aug. 6, 1985

## PATENTS

### 1. Arbitration (§16.)

Determinations as to scope, and infringement of, patent are central to licensing agreement in which payment of royalties depended completely upon whether licensee operated within or outside scope of patent's claim, and thus such determination must be included within scope of agreement's broad arbitration clause.

### 2. Arbitration (§16.)

Licensor which did not answer complaint but rather filed motion for stay pending arbitra-

tion has not waived its right to arbitrate merely by waiting until after licensor filed suit before requesting arbitration.

Appeal from District Court for the Middle District of Florida; Melton, J.

Action by Rhône-Poulenc Specialties Chimiques and Rhône-Poulenc, Inc., against SCM Corporation, for patent infringement, breach of contract and misappropriation of trade secrets. From denial of defendant's motion for stay, defendant appeals. Vacated and remanded.

Hal D. Cooper and Jones, Day, Reavis & Pogue, both of Cleveland, Ohio (Kenneth R. Adamo and Samuel Friedman, both of New York, N.Y., and Steven A. Werber and Commander, Legler, Werber, Daves & Sadler, both of Jacksonville, Fla., of counsel) for appellant.

Norman H. Stepp and Burns, Doane, Swecker & Mathis, both of Alexandria, Va. (Ronald L. Grudzicki and Eric H. Weisblatt, both of Alexandria, Va., on the brief, and George L. Hudspeth, Thomas F. Harkins, Jr., and Mahoney, Hadlow & Adams, all of Jacksonville, Fla., and Vincent E. DeFellece, Monmouth Junction, New Jersey, of counsel) for appellee.

Before Rich, Baldwin and Kasliwa, Circuit Judges.

## Rich, Circuit Judge.

This appeal is from the July 20, 1984, Order of the U.S. District Court for the Middle District of Florida, Jacksonville Division, denying the motion of SCM Corporation (SCM) for stay of proceedings pending arbitration pursuant to 9 U.S.C. § 3. We vacate and remand.

## Background

On January 1, 1979, Rhône-Poulenc Specialties Chimiques, a French corporation, and Rhône-Poulenc Inc. (Rhône or RPI) entered into an exclusive license agreement (agreement) with SCM, whereby SCM was granted the exclusive right to practice a chemical process for the isomerization of linalol to make a "geraniol product," comprising geraniol and nerol, using vanadium, a transition metal, as a catalyst according to claim 2 of U.S. patent No. 3,925,485 ('485), and to sell the geraniol product. The agreement provides